

## PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY  
(Chapter II of the Patent Cooperation Treaty)

REC'D 17 JAN 2006

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(PCT Article 36 and Rule 70)

Applicant's or agent's file reference JSPCT/167	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. <b>PCT/KR2004/002317</b>	International filing date (day/month/year) <b>13 SEPTEMBER 2004 (13.09.2004)</b>	Priority date (day/month/year) 19 SEPTEMBER 2003 (19.09.2003)	
International Patent Classification (IPC) or national classification and IPC <b>H01M 2/04(2006.01)i</b>			
Applicant <b>KOREA POWER CELL INC. et al</b>			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>3</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____ containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> <p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>			

Date of submission of the demand <b>27 MAY 2005 (27.05.2005)</b>	Date of completion of this report <b>06 JANUARY 2006 (06.01.2006)</b>
Name and mailing address of the IPEA/KR  Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer KIM, Sung Hee Telephone No. 82-42-481-5728



## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/KR2004/002317

## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

This report is based on translations from the original language into the following language English  
 which is the language of a translation furnished for the purposes of:  
 international search (under Rules 12.3 and 23.1(b))  
 publication of the international application (under Rule 12.4)  
 international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

the international application as originally filed/furnished

the description:  
 pages \_\_\_\_\_ as originally filed/furnished  
 pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
 pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the claims:  
 pages \_\_\_\_\_ as originally filed/furnished  
 pages\* \_\_\_\_\_ as amended (together with any statement) under Article 19  
 pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
 pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the drawings:  
 pages \_\_\_\_\_ as originally filed/furnished  
 pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
 pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3.  The amendments have resulted in the cancellation of:

the description, pages \_\_\_\_\_  
 the claims, Nos. \_\_\_\_\_  
 the drawings, sheets \_\_\_\_\_  
 the sequence listing (*specify*): \_\_\_\_\_  
 any table(s) related to sequence listing (*specify*): \_\_\_\_\_

4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

the description, pages \_\_\_\_\_  
 the claims, Nos. \_\_\_\_\_  
 the drawings, sheets \_\_\_\_\_  
 the sequence listing (*specify*): \_\_\_\_\_  
 any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/KR2004/002317

**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

## 1. Statement

Novelty (N)	Claims	1-8	YES
	Claims		NO
Inventive step (IS)	Claims	3, 4	YES
	Claims	1, 2, 5-8	NO
Industrial applicability (IA)	Claims	1-8	YES
	Claims		NO

## 2. Citations and explanations (Rule 70.7)

Reference is made to the following documents:

D1: JP58-157050A(Hitachi Maxell, Ltd.) 19 Sep. 1983

D2: JP59-005569(Hitachi Maxwell, Ltd.) 12 Jan. 1984

D1 discloses a battery comprising a battery case, a battery cover and an electrode assembly inserted into the case. The circumference of the case is welded at an end surface of the battery cover with plasma arc.

D2 discloses a battery comprising a battery case, a battery cap and a external terminal connected to a cathode in the battery case, and the external terminal is protruded to the outside through the battery cap.

## (1) Inventive step

Claim 1 of the present invention and its dependent claims 5-8 relate to a lithium ion battery comprising a can, a cap and an electrode assembly, wherein the flange of the cap is welded at outer surface of the cap by means of micro-arc. This battery structure is easy for a skilled person to arrive at from D1.

The invention of Claim 2 is a lithium ion battery comprising a can, a cap, an electrode assembly and a terminal, wherein the terminal is connected to one of the cathode plate and the anode plate in the electrode assembly, while being protruded to the outside through the cap or one side wall of the can. However the D1 discloses a battery including a battery case, a battery cover and an electrode assembly inserted into the case, and the D2 discloses a battery including an external terminal connected to a cathode in the battery case, while being protruded to the outside through the battery cap. So, no inventive merit is seen in the subject-matter of Claim 2 over the combination of D1 and D2.

Therefore, the subject matter of Claims 1, 2, 5-8 lacks an inventive step under PCT Article 33(3).

## (2) Industrial applicability

Claims 1-8 of the present invention are considered to be industrially applicable according to PCT Article 33(4).